BEES: Basic Engineering Estimate System – Printable Version

Welcome to the BEES Trainer

This website was developed to assist you in learning about the Basic Engineering Estimating System or the BEES. Before you start you should be signed up for this course through the Learning Management System or LMS. Please contact your senior or LMS coordinator if you are not enrolled in the BEES training course through the LMS.

This course is design to introduce you to the BEES through simulated and live exercises. It will also provide you with some tools that can assist you long after the course is over.

Use the buttons on the right to explore this site and learn about the BEES. Click on tutorials when you are ready to begin the course.

About BEES

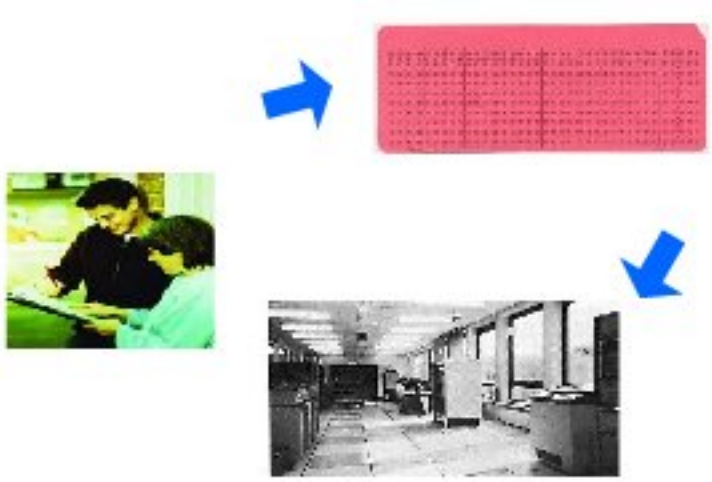
Welcome to the fun and exciting world of the mainframe database. The computer system you are about to explore is called the BEES for Basic Engineering Estimating System.

The BEES is a communication tool that allows project engineers to organize and send their estimate information into the parent database called PISA or Project Information System and Analysis.

Projects without estimate information from the project engineers are not allocated resources and can not be built. Proper estimates are a key component of any project.

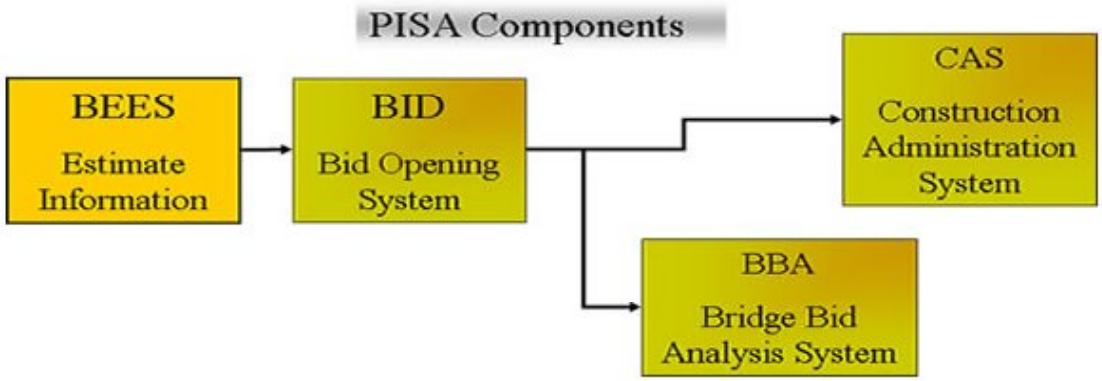
In the early days of computers the California Department of Transportation developed the Project Information System and Analysis or PISA.
While the PISA operated in a mainframe system using a computer as big as a house is was very modern and innovative at the time.

Developed in the 70’s, the PISA required engineers to fill out paper forms that were given to punch card technicians who created the punch cards and fed them into the mainframe computer.



This is how the estimate information was submitted to PISA.

In the mid eighties the BEES system was created to allow the engineers to input the estimate information themselves. The BEES is a subsystem of the PISA. The BEES feeds information into the PISA through the mainframe connection.



When the BEES was first created the input screens were made to look just like the old paper forms the engineers filled out by hand. While this was very helpful for the transition from paper to computer, not much has changed since then. Once a modern marvel, the BEES is now an old and cumbersome system that lacks the intuitiveness of today's computer software.

The BEES Trainer is here to help you become familiar with the system and use it effectively. Explore the site and work through the tutorials. In a few days and a few estimates you'll know just enough to get in trouble and a little more than the rest of us.

Getting Started

The BEES is the Basic Engineering Estimating System used by the California Department of Transportation to build and submit material and cost estimates for state highway projects.

This web site will help you learn how to use this system. If you are new to the BEES you can start with the tutorials that will guide you through a series of simulations before you jump into the real mainframe melee.

If you have some experience with the BEES and need some help or a little refresher you may find what you are looking for in the Help Section or in the Screen Help section.

BEES Manual

The Basic Engineering Estimating System (BEES) User Guide and Reference Manual provides detailed information about BEES and step-by-step instruction to create and modify a project estimate of cost in BEES.

http://oe.dot.ca.gov/BEES/BEES-2004.pdf

This is a 394 page manual that is very comprehensive. If you can't find the answers to your questions on this site or need further help and explanation check this manual.

Tutorials

The HIVE - Become familiar with the BEES concept by learning from a few honey makers. Here you will enter the HIVE system and learn the basics. The HIVE system will help you when you enter BEES.

SIM BEES - Learn about the system by creating and submitting a project estimate in a simulated system. Here you will complete all of the essential steps to prepare you for the real deal.

BEES LIVE - Enter the BEES system to get the feel of the real deal. Create a simple estimate, submit a file and receive a return file. Print and review reports from the real system.

Tutorials – The HIVE

Bees are great communicators.

They live because they are able to find food locations as individuals and return to the hive to tell all the other bees were the new food source is.

The returning bee shares his good news with the rest of the hive through a type of dance.

After the location is successfully communicated with the hive more bees seek out the newfound nectar to bring it back home.

Already great communicators, a small colony of bees finds out it has more to learn.

In the late 1970's in a rural California town a freak frozen burrito accident in a household microwave caused a radiation leak that effected one of natures most intelligent insects……

Soon the colony of hyper intelligent bees discovered the power of the computer and built a mainframe system.

The Department of Hives and Burrows now uses this mainframe system to develop estimates before they allocate the hive's resources to any new project.

The HIVE system is simply a tool of communication. The designer uses it to communicate the cost of the various parts of the project to the queen bee.

Whenever a new bee hive or underground burrow is being considered for construction the estimate must be sent to the queen bee who will consider the cost.

Without the estimate the key decision maker has no idea if the colony will be able to build the project. If there is no estimate there will be no project.

Establishing an estimate in the HIVE system can be a confusing and cumbersome task. Mainframe computers are not known for their ease of use.

However, by following this process you will be able to enter your estimate into the HIVE system and get your project to the Queen.

We will follow the process below to get our estimate to the Queen.

- Opening HIVE
- Establishing a File
- Entering the Data
- Submitting Your File
- Saving Your File
- Receiving Your File

- Re-saving Your File

Tutorials - The HIVE - Opening the HIVE

Normally the HIVE system is accessed through the Turquoise Database. Access to this database must be given through your system administrator.
Contact your IT representative to obtain access if you don't already have it.
For this tutorial simply click on the link below to open the system.

When working in the Mainframe system you may use both lower and upper case letters. The Computer will process them the same.
Use the Tab key to move from one field to the next. Use enter when you are finished to enter the information into the database.

Type in your User ID. Use **hivelearn**

Type in your password. Use **train 1**

Type in **run hive** at the command prompt. Hit the Enter key.

You are now in the HIVE system. This is the home page or starting page for HIVE.

Lets create a new file. Enter 1 at the prompt. Press Enter.

Tutorials - The HIVE - Establishing a File

Input your District and EA here. (Hey even bees keep track of expenses.) Use District **02** and EA **568910**.

Use the two digit district and the six digit EA for the Keyword. Here you will use **02568910**.

Here we are telling the mainframe what we are doing. We can enter an **E** or a **K** at this prompt. **E** is for **E**stablishing a new project. **K** is for modifying an existing project. Why **K**? We'll never **K**now.

- **E**=Establish
- **K**=Modify

Enter **E** here.

Type the Project Engineer's Name Here. Use **B. Honeymaker**.

Here we request what kind of reports we would like the computer to print for us.

- **H**=Hive
- **B**=Burrow

Enter **B** here in all three places.

When this data is complete hit the Enter Key

The enter key will move you to the bottom section. Each blank must be filled with a Y for yes or an N for no. Only one may be marked yes.

- **Y**=Yes
- **N**=No

Enter **Y** at Price and N at Desc. and Narrative. Hit the enter key to move on.

Tutorials - The HIVE - Entering the Data

This screen is the honey and potatoes of the HIVE system. The project items are entered here along with the information needed to build an accurate project estimate.

There are two valid options for the action field. **E** to **E**stablish a new item or **M** to **M**odify an existing item.

- **E** = **E**stablish
- **M** = **M**odify

Enter **E** in the Action field on line 1.

*__Do Not Press Enter__ - You should only press enter when you have entered all the data for this screen. If you press enter before you are finished the computer will push you to the next step. If this happens return to the description screen by inputting a Y at Quantity (Y/N) and an N at Desc and Submittal and press Enter.

The item field corresponds to standard item numbers found in the Construction Unit Cost System. For the purposes of this training your item codes will be provided. Enter **457** in the Item field on line 1.

The unit of measure field corresponds to bee measurements, ie: Wing, thorax or flight for lengths and mouth, cell, pod or pile for volume measurements. Enter **cell** in the Unit of Measure field on line 1.

The quantity field is a simple number input to indicate the amount needed of the item listed. Enter **14** in the Quantity field on line 1.

The item price field is the amount per unit of measure if available. If a per unit price is not applicable the entire price of the item in its total quantity is required. Enter **150.00** in the Quantity field on line 1.

Well Done. You have entered your first item successfully. Looks like we may build that hive after all. Now enter your second item with the following information:

Establish a new item for item number 435. The project needs 230 of item 435 measured in wings at 3.00 per wing.

Continue with the following items:

This project needs 1560 pods of item 219 at 15.00 per item and 6 cells of item 771 at 305.00 per item.

Now we can hit the enter key. The enter key sends our information to the estimate file we are building. The enter key also closes out the input screen above and sends us to the choices below. This area is called the yes/no questions.

Sometimes an item needed for a project is not listed in the Standard Item List. We can add a non-standard item with a few easy steps.

The Description Screen allows us to add a non-standard Item.
In the yes/no questions we need to make Desc Y so we can go to the Description screen. Mark the others N for no and hit the enter key.

Due to the variability of each project and the technological improvements in resources there are often items the project might require that aren't included in the standard items list.

This screen helps us meet that challenge. The description screen allows us to add items to the project inventory.

This screen is used to Establish a non-standard item or Delete a non-standard item you have already established.

- **E** = **E**stablish
- **D** = **D**elete

Type **E** in the ACTION field to establish our non-standard item.

The Record Type field is asking us to tell the system why we are adding this description. We input the letter **N** for Non-Standard Item.

- **N** = **N**on-Standard Item

Type **N** in the Record Type field.

The Description Code is looking for a number. Use a 6 digit item code number followed by an A. When you do this you need to remember the number. We will use it later to add the item to the quantity list. Type **123456A** in the Description Code field.

The Description field needs a description of the item we are adding. You must tab to the next line when you get to the end of a line. This is old school mainframe stuff and it doesn't do word-wrap.

Type this in the Description field:

Polycarbon bonding agent for use with honeycomb wall units.

Excellent work. Now add another non-standard item:

- Vertical hinge joint for temporary pentagonal comb construction
- Use Description Code 123457A

Terrific. Now we need to close out this section and move to the bottom of the screen to the "go to questions." How do we do that?

Remember the Yes/No question section. All the blanks need to be filled in. Mark the Quantity **Y** to take us to the quantity screen and mark the others **N**. Hit the Enter Key to move to the next screen.

Now we simply add the two items we just created. Add the following to the project estimate:

- 5 pods of item 123456A @ a cost of 1800.00 per pod.
- 307 units of 123457A @ a cost of 10.58 each.

Well done. Use the Enter Key to close out the input fields and open the Yes/No Questions. Now that we have finished the input of the standard and non-standard items we need to prepare the submittal. Answer the Yes/No questions to send us to the submittal page.

We've just seen how smart bees use their mainframe system to communicate their estimates to the Queen Bee. In the next simulator we'll learn how smart engineers can use the BEES mainframe program to communicate their estimates to headquarters. While similar to the system we just looked at, it is a little more detailed. Lets take a look at Sim BEES

Tutorials - SIM BEES

Welcome to the BEES Simulator. This training tool will help us learn how the Basic Engineering Estimating System works and how we input information into the system.

The BEES is accessed through the Teal Database. Access to this database must be given through your system administrator.

Contact your IT representative to obtain access if you don't already have it.

Tutorials - SIM BEES - Opening BEES

When working in the Mainframe system you may use both lower and upper case letters. The Computer will process them the same. Type in your User ID. Use **beeslearn**. Type in your password. Use **train 1.**

Just press enter to move forward.

Tutorials - SIM BEES – Establishing a File

On this screen a command prompt (blinky cursor thingy) will appear in this area. Type: **run bees,** then hit: **enter.**

This is the 'home page' for the BEES. It all starts from here.

Please note that the only choices you need to care about here are number 1 and number 2.

Many elements in the BEES are no longer updated or maintained. For instance, the last time BEES NEWS was updated was May 18 in 1992.

Enter **1** at the prompt and then press **Enter.**

Input your District and EA here. Use District **02,** Cost Center **150,** and EA **678910.**

Are we building an estimate for a Highway or a Bridge? Use **H** for Highway or **B** for Bridge. The default is H. Leave this entry an H.

Use the two digit district and the six digit EA for the Keyword. Here you will use **02678910**. f you use something else for the keyword you will be annoyed by people who will call you to get the keyword. These people will hate you and curse your name.

Here we are telling the mainframe what we are doing. We can enter an **E** or a **K** at this prompt. **E** is for **E**stablishing a new project. **K** is for modifying an existing project. Why **K**? We'll never **K**now. Enter **E** here.

- **E**=Establish
- **K**=Modify.

Fill these in with the name of the Project Engineer and the Senior Engineer.

Leave the Special Desig field blank, as it is rarely used.

The PMCS? field is asking if the information for this project has been entered into the Project Management Control System (PMCS).

If the project *has information* such as the EA, description, location, route, and so forth in the PMCS then leave this *blank*.

If the project *has no information* in PMCS then enter a **P** in the field. When the information is added to the PMCS it will update the BEES as well.

These fields allow us to request various reports about the estimate (Price, Description and Blue Sheet).

BEES will request all reports by default. It is already set at **H** for Highway. You may change it to **B** for Bridge or **C** for a Combined report of Highway and Bridge. Leave it at H for this exercise.

Do not press the Enter key until all the fields are complete. Even though this screen looks like one big part, its actually two separate sections and the mainframe system treats them that way. This top section is the data entry part. Push enter only when you have finished with the data entry.

The bottom of the page is called the GO TO section. After you push enter the top section will close and the bottom section will be waiting for instructions.

Each open field in the GO TO section must be completed with a **Y** or an **N**. Type **Y** for Yes in the Quantity/Price field and **N** for No in the other three fields. Use the Tab key to move around and hit the Enter key when you are finished.

Tutorials - SIM BEES – Entering the Data

Congratulations. You have just established a file and moved to the hart of the BEES system, the Quantity/Price screen.

The Quantity/Price screen is used to input each item included in the estimate.

We input the amount of that item needed (quantity) and the cost of that item (price).

The Funding Type Seg and Alternate fields are for building a segregated estimate or creating alternate estimates. That is more advanced than we are going to be in this tutorial. Leave these blank.

***Remember** - Use the Tab key to move from field to field. If you use the mouse it will freeze up the system.
If you hit the enter key before you are done you will have to come back to this screen to complete the information.

Field: Action

There are two valid options for the action field:

- **E** to **E**stablish a new item
- **M** to **M**odify an existing item.

Type **E** here to establish a new item.

Field: Item Code Number

This is a 6 digit number that is called a standard item code. These are found in the Construction Unit Cost System. For this exercise your item codes will be provided.

Sometimes you will have an item that is not listed in the Construction Unit Cost System. That is called a non-standard item. We will learn more about non-standard items later.

Enter the item code 390145. This is the code for: Replace Asphalt Concrete Surfacing.

Field: Unit of Measure

Enter the unit of measure for the item here. The system will accept standard and metric units. When building an estimate use all standard or all metric. Mixing them together causes confusion for everyone.

Enter m3 here for cubic meters.

Field: Component Level

This field is usually used for bridge estimates. If you do not have a component level to enter just leave it blank. Leave it blank here.

Field: Quantity

The quantity field is a simple number input to indicate the amount needed of the item listed. Enter 1380 here.

Quantity Rules:

- Do not right justify entries. BEES will make adjustments automatically.
- Do not use decimals unless needed. For Example:
  Enter **10** and not **10.00**
- Do not enter quantity amount with a hundredth of a unit. BEES will only accept tenths. For Example:
  Enter **1.3** and not **1.34**

Field: Final Pay

If this is a Final Pay item enter F here. Otherwise, leave it blank. Leave this item blank.

Field: Loc. (Location)

This field is rarely used. If you have a location you need to designate in the estimate you can enter any 2-letter code here. If you use this you need to enter a description of the location on the description screen that we will look at later. Leave this blank.

Field: Sec. (Section) Code

There are only three choices for this field:

- **SW** to designate an item as a supplemental work item.
- **SF** to designate an item as a state-furnished item.
  Blank for contract items. (not supplemental or state-furnished)

Field: Special (Specialty) Code

There are only two choices for this field:

- **S** to designate an item as a specialty item.
- Blank for an item that is not a specialty item.

Note: The S for a specialty item must be entered into the first space of the field. (Even though the field is big enough for two characters.)

Field: Item Price

Enter the price for the item here. This is the price per unit or the lump sum price for items designated as lump sum quantities. We'll look at lump sum quantities later.

Item Price Rules:

- Leave blank for quantity only entries.
- The price must be less than $10,000,000 for a lump sum entry.
- Do not use decimals unless needed.
- Do not use the dollar sign ($) or commas
  Do not change the alignment, Bees will automatically right justify each entry.

Enter 300 here for this item. That means that each cubic meter is estimated to cost $300.00

Field: N/S (Non-Standard) Item Code

This field is not required. It is primarily used by DES-OE to reassign item code numbers. We aren't going to worry about this one. Always leave it blank.

Great! You have completed your first entry. Remember, do not press the Enter key. Just tab to the next line and enter the next item.

Enter the these three items now.

- Item 840515 (Thermoplastic Pavement Marking) 45 m2 at $40 per m2
- Item 840561 (Thermoplastic Traffic Stripe) 7550 m at $2 per m
- Item 850122 (Pavement Marker/Retroreflective-Recessed) 700 each at $15 each. The Quantity Code for **Each** is **EA**

Let's take a look at **Lump Sum** as a unit of measure. As you probably know, we use lump sum when we are combining a group of activities, materials or services to be provided by the contractor or state as a complete unit. We often use lump sum for items like traffic control or water pollution control.

The amount under item price is the total amount estimated for the performance of the item or service.

Since we're only measuring one item for a lump sum item we enter **LS** under unit of measure (for Lump Sum) and **1** (one) under quantity.

BEES will print out "Lump Sum" in place of the 1 under quantity on the Blue Sheet Estimate.

Enter the following as lump sum items. The first is done for you:

- Item 074017 (Prepare Water Pollution Control Program) lump sum for $2,000
- Item 074020 (Water Pollution Control) lump sum for $5,000

Very Good. Now we'll look at Final Pay Items. If an item is designated as final pay we simply enter an **F** in the final pay column.

Enter the following item:

- Item 510502, a final pay item, 1.3 cubic meters @ $200/m3

Nicely done. Now consider supplemental work items. If an item is designated at supplemental work we simply enter SW in the Sec. (Section) Code column.

Enter the following:

- Item 066070, (Maintain Traffic), Supplemental Work Item, Lump Sum, For $26,000

Very Good. The Section Code column is also used to designate a state furnished material item. f an item is a state furnished material item key if **SF** in the Section Code column.

Enter the following item:

- Item 066062, (COZEEP Contract), a state-furnished item, lump sum @ $15,000

Sometimes an item needed for a project is not listed in the Standard Item List. We can add a non-standard item with a few easy steps.

The Description Screen allows us to add a non-standard Item.

Close out the Quantity/Price screen and open the GO TO section of the screen by hitting the ENTER key.

In the yes/no questions we need to make Description Y so we can go to the Description screen. Mark the others N for no and hit the enter key.

Due to the variability of each project and the technological improvements in resources there are often items the project might require that aren't included in the standard items list.

The Description screen helps us meet that challenge. The description screen allows us to add items to the project inventory.

Field: Action

There are three valid options for the action field:

- **E** to **E**stablish a new description
- **D** to **D**elete an existing description
- **M** to **M**odify an existing description

***Note:** The BEES gurus tell us that modifying an existing description is very tricky and leads to a lot of errors. It is recommended that we simply delete a description and establish a new description with the corrections included.

Field: Record Type

There are four valid options for the action field:

- **S** for a funding type **S**egregation description
- **A** for an **A**lternate description
- **N** for a **N**on-Standard item description
- **C** or a **C**omponent description

The only one we will be dealing with at this point is **N** for **N**on-Standard item description.

Field: Description Code

For non-standard items use a six digit code number followed by an A.

This is a number that we just make up. Remember the number though, we'll use it later.

DES-OE will change this number later when they get the file. We just need to make one up for now and keep track of it.

The Description field needs a description of the item we are adding. You must tab to the next line when you get to the end of a line. This is old school mainframe stuff and it doesn't do word-wrap.

Establish a Non-standard item. Use 860811A for the description code and the following for the description: Loop Detector Replacement.

Excellent. Here's another one:

- Description Code 066222A, Repair Additional Asphalt Concrete Surfacing.

Nice. Once we have added our descriptions for our non-standard items we need to go back to the Quantity/Price screen and add the items.

Remember to hit the enter key to move down to the GO TO section. Enter a **N** for No in all the blanks except the Quantity/Price field. Enter a **Y** for Yes here and hit the enter key.

Hit the Enter Key and your off to the Quantity/Price screen again.

***Remember:** Use the Tab key to move from field to field.
If you use the mouse it will freeze up the system.
If you hit the enter key before you are done you will have to come back to this screen to complete the information.

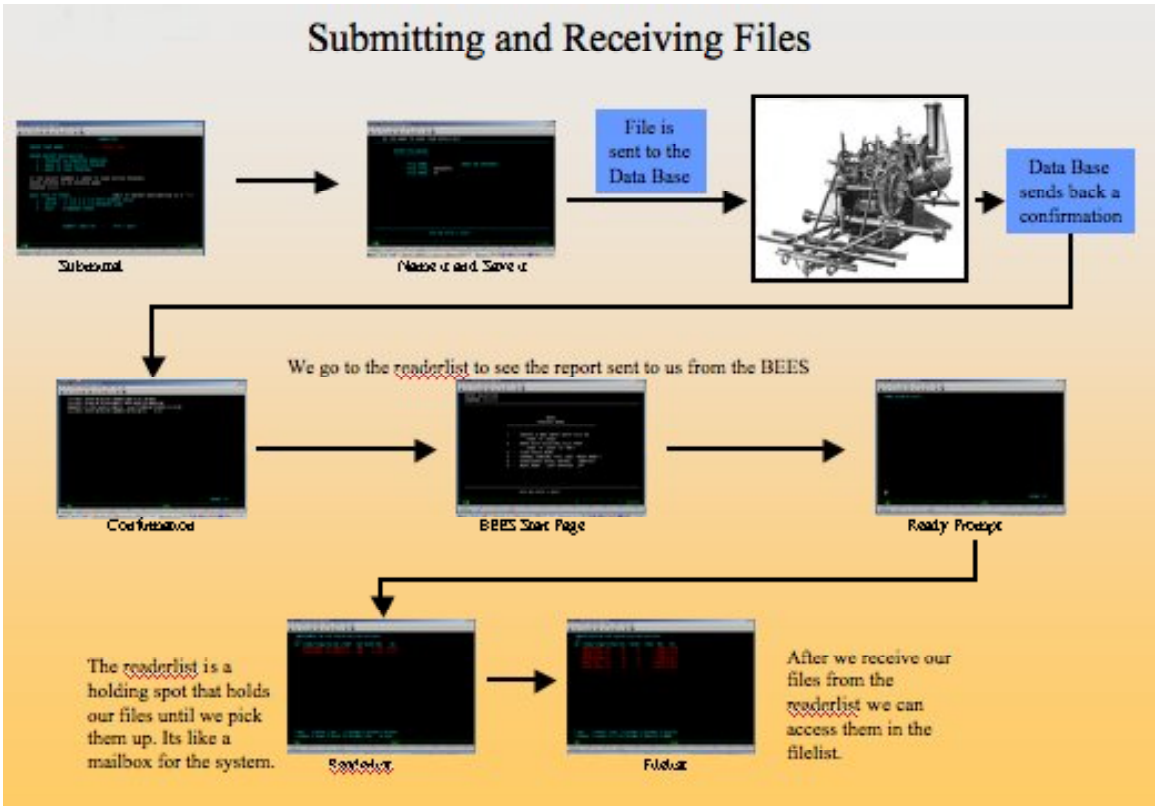
Now we need to add the two new items we just entered on the Description screen:

- Item 860811A Loop Detector Replacement, Lump Sum @ $40,000
- Item 066222A Repair Additional Asphalt Concrete Surfacing, supplemental work Item, Lump Sum @ $3.000

Great. You're a Pro now. The hard part is done and its time to send in the estimate info into the BEES.

Hit the Enter key to open the GO TO section and fill in all the fields. Enter **N** into the first three and **Y** for Yes into the Build Submittal field.

Tutorials - SIM BEES – Submitting Your Files



Now that your data has been entered we can send the estimate into the data center.
This page is called the **Submittal**. We will fill in a few fields and send the file on its way.

Enter your name here. It has also been suggested to enter your phone number as well so others working on the file can contact you for questions and clarification.

Report destination tells the system how to send the estimate back to you. Choice #1 is no longer valid and choice #2 only works if you have a printer set up to work with the system (We'll touch on this later). Choose #3. Enter **3** here.

Just enter a Y for Yes here and hit the enter key. You're on your way!

Tutorials - SIM BEES – Saving Your File

We always want to save the data. Enter **Y** for Yes.

Use the two digit district and the six digit EA for the file name. Enter 02678910 here for this estimate file. Hit the enter key to move forward.

This information shows that your data was sent and accepted to the Data Center. If your screen shows “HOLDING” press the **PAGE DOWN** key on your keyboard.

If you return to the BEES menu simply hit the F3 key to return to the READY prompt. If you have a structures account simply press enter when asked for your structures code. This should return you to the READY prompt.

Tutorials - SIM BEES – Receiving Your File

This screen is called the READY prompt. From here we can access the Readerlist. The Readerlist is a holding place for stuff that gets sent to us from the mainframe system. Its like a mailbox and we need to go pick up the mail.

Go to the Readerlist by hitting the **F9** key or typing **rdl** or **readerlist**. If one doesn’t work try the others.

The Readerlist looks like this. It is like a mailbox with mail to us from the mainframe. We need to pick up the mail and take it home.

Note some of the options:

- **F3** is quit
- **F9** is receive
- **F11** is peek

Receive is how we take the mail from the mailbox and take it home. F9 may not work on your computer. You may need to tab to the file you need and type in a command to receive the file. More on this in a minute.

Peek (F11) lets us view part of the data file. To view the entire file we must receive the file from the readerlist into our filelist.

Tutorials - SIM BEES – Resaving Your File

Use the Tab key to place the cursor in front of the first file.

Type **receive / replace** (with spaces on each side of the /) You can type right over the existing text. Type the command **receive / replace** and hit enter.

This will receive the file and replace any older copies in your file list with the new copy you just submitted.

After you receive the file the screen will verify received for you. The data file is now in your filelist. Go to the filelist from here by pressing the **F8** key or typing **filelist** and hitting Enter.

A line that says LISTING under filetype is a BEES report file.

The command menu on the bottom refers to the F keys at the top of your keyboard. F8 will move one page forward in the reports and F7 will move one page backward. F11 is used to view reports in the database and F3 will quit what you are currently using. Use F3 to exit when you are reviewing reports. Unfortunately, when you are viewing a report and you need the F key command menu the most, it is gone from sight. The commands still work, just remember what they do.

To print a report tab to the file line and type:

print / your mainframe printer ID

Example**: print / trfa400m** (be sure to leave spaces around the /)

Your mainframe printer will have an ID number on a tag on the outside of the machine. It will should start with trf.

There are four main reports that can be requested:

- Price Report
- Description Report
- Blue Sheet Report
- Quantity Report

The **Price Report** lists the item code numbers, their descriptions, and their associated prices. This report also includes the unit of measure, and identifies any specialty items, final pay items, supplemental work items and state-furnished items.

The **Description Repor**t lists the descriptions of non-standard item code numbers, alternates, locations, components and segregations, if there are any.

The **Blue Sheet Report** (Preliminary Estimate of Cost) lists the item code number, unit of measure, quantity, and price. It also gives a summation of items in the project subtotal, a list of supplemental work items, state-furnished items, contingencies and project total.

The **Description Report** lists the item code number, unit of measure, quantity, segregated quantity (if any) and the component quantity (if any).

Tutorials - SIM BEES – Making Changes

We can make changes to an existing estimate file using the BEES. The best way to make changes is from the “A” disk screen.

The “A” disk is your own file information in BEES. At the BEES start screen choose 2 and press Enter.

Choose **A** to make changes to an existing file and press Enter.

Use the GoTo fields to go to the Quantity/Price Screen.

Remember: Fill in all the fields. Enter **Y** for yes into the first field and **N** for no into the remaining three. Hit Enter.

Remember our codes for the Action field:

- **E** = Establish
- **M** = Modify
- **D** = Delete

Always use the Item Code of the item you need to change. When modifying an existing item we only need to enter the action code (M), the item code number, and the change we are making.

When modifying an existing item we only need to enter the action code (M), the item code number, and the change we are making.

To change item 840515 from 45 units to 78 units we enter this:

If we need to change the price we enter the new price as well.

Now change the following items.

- Item 840561 to 7500 units with a price of $17.00
- Item 390145 to 1340 units

If we need to make changes to these fields we can simply modify the item by adding the correct indicator; F for Final Pay, SW or SF for Supplemental Work or State Furnished Items in the Section Code field, and S for Spec. Code.

To remove one of these designations we modify the item and insert the # in the field we need to clear. One (#) in the Final Pay Field and two (##) in the Sec. Code and Special Code Fields. This will clear the fields for that item.

Change the following items:

- Item 510502 was entered as Final Pay. Modify it to show no Final Pay.
- Item 074017 is a Supplemental Work item and need to be modified to reflect that.
- Item 066062 shows State Furnished. Modify it to show not State Furnished.

We can also change a description for a non-standard item.

Use the GoTo section to go to description.

Remember, all the fields in the GoTo section need to be filled with N or Y.

When modifying an existing non-standard item description the experts tell us that we should **delete the old one and establish a new one.** Modifying creates too many opportunities for error.

If we modify the description for Item 86011A to read Loop Detector Repair we would first delete the existing and establish a new one:

We've deleted the old one and established a new non-standard item.

Now modify the description for Item 066222A to read **Replace/Repair Concrete Surfacing.**

Excellent. Now you would simply use the GoTo fields to finish building your estimate or to build your submittal.

Tutorials – BEES LIVE!

You've learned the theory and the process. You've practiced in a simulation of the program. Now its time to use the real BEES! This step will propel you into the exciting world of the mainframe database. The thrill begins!

Before we open the BEES we need to check three things:

1. Check Monitor settings
2. Obtain an Account
3. Get Access to the BEES
4. Complete Activity

Check Monitor Settings

The BEES is accessed through your computer using emulating software. Currently the department is using PowerTerm by Ericom Software.

Locate the program icon on your Desktop.

If you don't have this icon on your computer contact your senior or your IT representative. If your office has everyone enter their estimates on the same machine then go to that machine to complete this portion.

To check the monitor settings click on Communication in the Menu Bar.

If the drop down menu shows "Disconnect" in black and "Connect" in grayscale click on " Disconnect"

The program will ask you if you want to close the session. Click on Yes. The screen will go blank. Click on Communication again. Click on Connect...

1. Session Type should be set at TN3270.

2. Terminal Type should be set at 3270 Display.

3. Terminal ID must be set at (27x132). This one is set correctly. The ID says: 3278-5 (27x132). Use the drop down choices to find the setting with (27x132) and click on it.

4. Host Name is ts1.

5. Make sure this box is checked.

6. Hit connect when you have all the correct settings.

*Please note that if you don’t set your connection settings like this your monitor will not work with BEES.

After you have checked your setting and re-connected this screen will appear again. You are now ready to log in.

Obtain an Account

The BEES is accessed through the Teale Database. Access to this database must be given through your system administrator. To access the Teale Database you will need a User ID and a Password. Contact your senior or your IT representative to obtain access if you do n't already have it. If your department enters all BEES data through one terminal go to that terminal to complete this exercise.

Get Access to the BEES

Simply having access to the Teale Database does not mean you can access the BEES. Your system administrator must set up your computer with the "Profile Execs" for the BEES. Once this is completed you can access the live system just like you have practiced in the simulation.

Now Complete the Following Activity

Establish the following highway estimate in BEES. If you need help or forget how to enter something refer back to the BEES training and reference site. Be sure to print the activity as well.

- District: 44
- Cost Center: 940
- EA*: 00000___
- Keyword*: 4400000___

*Use the EA given to you by the course administrator for this exercise. EA's for this exercise in the live BEES will be 00000A-00000Z. Remember, the Keyword is the two-digit district and the six-digit EA.

Project Engineer: Joe Smartstuff **Senior Manager:** Jane Leaderski

Item Number	Item Information	Cost
066062	COZEEP Contract; State-furnished Item; Lump sum	$15,000
066070	Maintain Traffic; Supplemental Work Item; Lump sum	$26,000
074017	Prepare Water Pollution Control Program; Lump sum	$2,000
074020	Water Pollution Control	$5,000
120090	Construction Area Signs; Specialty item; Lump sum	$2,000
390145	Replace Asphalt Concrete Surfacing; 1380 ft3	$300 per ft3
397001	Asphaltic Emulsion (Paint Binder); 6 ton	$600 per ton
840515	Thermoplastic Pavement Marking; 45 ft2	$100 per ft2
840561	4 inch Thermoplastic Traffic Stripe; 7550 ft	$6 per ft
850122	Pavement Marker (Retroreflective-Recessed); 700 each	$15 each

Establish these as Non-Standard Items:

Item Number	Item Information	Cost
860811A	Loop Detector Replacement; Lump sum	$40,000
066222A	Repair Additional Asphalt Concrete	$3,000

	Surfacing; Supplemental Work Item; Lump sum	

Further Instructions

- Submit your estimate to BEES.
- Open the Readerfile and receive the file into your Filelist.
- Go to your Filelist to see your estimate file.
- Use the F Keys to view your report:
  *Note: Because the EA is a fake for practice only you will only see a partial report and an error statement. That is OK. Print this off.
- Delete the EA from the BEES Database.
  *From the BEES Homepage/Process Window:
  Choose # 2 to work with and existing file from your "A" Disk. Place your cursor next to your practice EA. Type "D" for Delete File and hit the Enter key.
- Now the Database is ready for the next student.
- Be sure to chcek out the BEES closing page when you have completed this activity.

Screen Help

Having a hard time remembering what you are supposed to be doing on a specific screen? Scroll through the screen shots on the right and find the one you need help with. Click on that screen to go to it's help page.

Screen Help - Screen 1 (TS1 Login)

- Enter your User ID.
- Enter your Password.
- Hit Enter to Log In

Screen Help – Screen 2 (Login Verification Screen)

Just hit Enter to continue.

Screen Help - Screen 3 (Sign in Prompt)

At the command prompt type: RUN BEES and hit Enter to continue.

Screen Help – Screen 4 ("Home Page" or "Process Menu")

This is the 'home page' for the BEES. It all starts from here.

Please note that the only choices you need to care about here are number 1 and number 2.

If you are creating a new estimate file enter **1** at the command prompt.

If you are working with an existing file enter **2** at the command prompt

Screen Help – Screen 5 (Project Information Screen)

1. **Distict -** This is a 2-digit field. Use the district where the project is located. This field is required. Check the accuracy of the district if the project is being sourced differently than the originator of the project (i.e., regionalization).

2. **Cost Center -** This is a 3-digit field. Use the project cost center code. The project cost center may not be the same as your cost center. This is a required field. Project Management in your district in responsible for providing this information. DES-OE cannot assist you with or modify this information.

3. **EA -** Expenditure Authorization. This is a 6-character, alphanumeric field. The EA must be the authorized number for the project. This is a required field. For PS&E submittals, use the EA in the “1” phase (with “1” for the last digit).

4. **Alt Study -** Alternate Study. This is a 1-character, alphanumeric field. This is considered to be an alternate study of the same project. The seventh digit associated with the EA and can be useful to the estimator who needs more than one estimate for any reason. Use an alpha character to distinguish it from the original EA. This field is optional and rarely used and therefore not recommended. If an alternate study is used, it must be deleted from the mainframe database before PS&E submittal.

5. **Est Type -** Estimate Type. The default value for this field is H for Highway. This field designates the type of estimate to be established or modified. This is a 1-character field. This is a required field. There are only two choices of estimate type.
    - Use H for Highway projects.
    - Use B for Bridge/Structure projects.

6. **Keyword -** This is an 8-character field used to protect the project estimate from accidental modification. Use the 2-digit district and the project EA for the keyword. Using obscure acronyms or nicknames is not recommended. This is a required field. The keyword must be used

when establishing or modifying the project information or estimate items.

7. **Process -** This is a 1-character field. There are only three choices of process type. Use E to establish a project. This only occurs once for an EA. Once established this process does not need to take place again. Use K to make changes to the estimate, including, but not limited to, description, price, unit of measure, and quantity.
   Use D to delete a project. *Note: Once you delete your project form the BEES and the mainframe database neither DES-OE or IT personnel can restore your file.* This field is required for all modifications to the EA and the estimate items. This field is not required when requesting reports only.

8. **Project Engineer's Name -** This is a 20-character, alphanumeric field. Use the senior engineer's first and last name. This is required to establish an EA. This field is not required when making modifications to a project.

9. **Senior Engineer's Name -** This is a 20-character, alphanumeric field. Use the senior engineer's first and last name. This is required to establish an EA. This field is not required when making modifications to a project.

10. **Special Desig -** Special Designation. This is a 9-character, alphanumeric field. Use the project special designation is applicable.

11. **PMCS -** Project Management Control System. This is a 1-character field. There are only two choices for this field.
    Leave this field blank if the project has information in PMCS.
    Enter a "P" if the project does not have information in PMCS. By using the P, the system will bypass PMCS and continue processing your estimate. See your project management unit regarding PMCS information. DES-OE cannot revise the PMCS information.

12. **Various Reports -** These fields allow you to request various reports about your estimate. The reports include the Price, Description, Blue Sheet and Quantity. BEES will be default request all highway reports. Although you only need the blue sheet for your PS&E submittal, request ALL reports. The reports will help you check your estimate and identify any errors.

13. **Price Report -** The default value for this field is H for Highway. This is a 1-character field. There are three choices for this report.
    - H to request a highway only report
    - B to request a bridge/structures only report

- C to request a combined highway and bridge/structures report

The Price Report lists the unit price records in your estimate. It may Include price records for items with no quantities or zero quantities.

14. **Description Report -** The default value for this field is H for Highway. This is a 1-character field. There are three choices for this report.
    - H to request a highway only report
    - B to request a bridge/structures only report
    - C to request a combined highway and bridge/structures report

    The Description Report lists the descriptions for each non-standard item, funding segregation, component level, location or alternate. Note: The Narrative Report is automatically generated and displayed after the Description Report although there is no request field for a Narrative Report.

15. **Blue Sheet Report -** The default value for this field is H for Highway. This is a 1-character field. There are three choices for this report.
    - H to request a highway only report
    - B to request a bridge/structures only report
    - C to request a combined highway and bridge/structures report

    The Blue Sheet Report is the Preliminary Estimate of Cost or the estimate. The object of inputting data into BEES is to produce an error free estimate. The estimate report contains all items with their unit of measure, quantity and price. The estimate report sums all items for a project subtotal. It also includes supplemental work and state-furnished items, 5% contingency and the project total.

16. **Quantity Report -** The default value for this field is H for Highway. This is a 1-character field. There are three choices for this report.
    - H to request a highway only report
    - B to request a bridge/structures only report
    - C to request a combined highway and bridge/structures report

    The Quantity Report lists the quantity records in your estimate. It may list quantity records with no prices or zero prices.

17. **Order of Listing -** This is a 1-character field. This field designates whether the quantity report will be formatted in decreasing or increasing order. Use “I” which will list the items in increasing order.

18. **Go To Menu -**The bottom of the page is called the GO TO section. After you push enter the top section will close and the bottom section will be waiting for instructions. Each open field in the GO TO section must be completed with a **Y** or an **N**. Type **Y** for Yes in one of the fields

and **N** for No in the other three fields. Use the Tab key to move around and hit the Enter key when you are finished.

Screen Help – Screen 6 (Quantity Price Screen)

1. **Funding Type Seg -** This is a 1-character field. This field is used to designate a segregation, if needed. Use any letter designation (i.e., A, B, C,) except I, D, O. Leave blank for no segregation.

2. **Alternate -** This is a 2-character field. Alternate design items are designated by an alternate code. Use 2-letter codes starting with "AA." Double letter codes are used to avoid confusion with segregation codes.
   This field is not required. Leave blank if you are not working on an alternate estimate.

   Projects that have alternate designs use two or more methods or materials to complete the same work shown on the plans. BEES allows you to input items used exclusively for alternate designs.
   The preliminary Estimate of Cost report will show all items for different alternate designs. Estimate totals shown on the Preliminary Estimate of Cost report are based on the lowest cost alternate.

3. **Action -** This is a 1-character field. There are three main choices and two extra choices for segregations only.
   - **E** to **E**stablish an Item
   - **M** to Modify and Item
   - **D** to **D**elete an Item

   For segregation only
   - **C** to delete the price only
   - **A** to delete the quantity only

   This is a required field.

4. **Item Code Numbe r-** This is a 6-digit field. Use the standard 6-digit item code number. Item codes are found in the Construction Unit Cost System or the Contract Cost Data. This is a required field.

   When using a non-standard item, use a 6-digit code number followed by an "A". This is a number that you make up.
   Use different item code numbers followed by an A for non-standard items.

Incorrect	Correct
390101A	390101A
390101B	390105A
390101C	390110A

390101D	390115A

Only use an item code number once even if you use an A for a non-standard item.

Incorrect	Correct
390101	390101
390101A	390103A
390105	390105
390105A	390107A

5. **Unit of Measure -** This is a 4 character alphanumeric field. Use the standard abbreviations for English or Metric units of measure.
   This is a required field when establishing an item.
   When modifying, leave blank unless you are modifying the unit of measure.

   Please Note: Per Deputy Directive DD-12-R1 dated October 2006:
   "The California Department of Transportation has adopted the use of English units as its preferred system of units and measures."
   Refer to the following for more information:
   Deputy Directive DD-12-R1
   Director's Policy DP-15-R-1

6. **Component Level -** This is an 11 character alphanumeric field. This is usually reserved for bridge items. Use any combination of numeric of alpha characters (including dashes and spaces).
   This is not required. Leave blank for no component

7. **Quantity** - This is an 11-digit field. Use the appropriate item quantity.
   This is a required field when establishing an item. When modifying an item leave blank unless modifying the quantity.
   Use a quantity of 1 for lump sum items. In the Preliminary Estimate of Cost, BEES will replace the "1" in the quantity field with the words "lump sum."
   Do not right justify your entries. BEES will align the entries automatically.
   Do not use decimal points unless needed. For example:

Incorrect	Correct
10.00	10

   Do not use quantities with a hundredth of a unit. The bid opening system cannot accept these quantities. Use quantities to the tenth of the unit. For example:

Incorrect	Correct
1.34	1.3

8. **Final Pay -** This is a 1-character field. Use **F** if the item is a final pay item.
   When modifying use # to remove the final pay designation.
   Round final pay quantities less than 5 to the nearest tenth of a unit.

9. **Loc -** Location. This is a 2-character alpha field. The location field is used occasionally to define locations. Use any 2-letter code.
   Leave blank for no locations. This field is rarely used.
   When modifying an existing item use ## to remove a location designation.
   Enter the description of the location on the description screen.

10. **Sec -** Section Code. This is a 2-character field. There are only three options for this field:
    If your item is not a supplemental work or state-furnished item just leave it blank. Use SW to designate an item as supplemental work
    Use SF to designate an item as state-furnished
    When modifying an existing item use ## to remove the SW or SF designation.
    BEES does not check if the item exceeds the maximum dollar value limits.
    See the RTL guide.

11. **Special -** Specialty Code. This is a 2-character alpha field. Use S in the first space of the Specialty Code. Leave blank for non-specialty items.
    When modifying an existing item use ## to remove the specialty designation.
    See the RTL guide for types of specialty items.

12. **Item Price -** This is an 11-digit field. Use the appropriate price for the item. This is a required field when establishing an item. Leave blank for quantity only entries. The item price must be less than $10,000,000 for a lump sum item entry. Do not use decimals unless needed. BEES will automatically align the entries.

13. **N/S Item Code -** This is a 6-digit numeric field. Use the appropriate standard item code numbers. This field is not required and is primarily used by DES-OE to reassign item code numbers.

Screen Help – Screen 7 (Quantity Price Screen)

1. **Action –** This is a 1-charcter field. There are three choices for the Action Type: ‘E’ to Establish, ‘D’ to delete a description and ‘M’ to modify an existing description.

2. **Record Type** – This is a 1-charcter field. The three choices for record type are: ‘S’ for funding type segregation description, ‘A’ for alternate

description, ‘N’ for non-standard item description (this is the most common use) , ‘C’ for component description and ‘L’ for location description.

3. **Description Code -** This is an 11-character, alphanumeric field. The choices for description type are: Segregations: any 1 letter code, except for D, I, O & Z; Alternate Designs: any 2 letter codes; Non-Standard Items: any 6 digit item code number followed by an ‘A’; Components: up to any 11 character, alphanumeric code; Locations: up to any 2 character, alphanumeric code; for Alternate Segregation or Components Descriptions that already have a code on the Quantity/Price Screen, use that code.

4. **Description –** This is a three row, 40-character per row, alphanumeric field. Tab to the next line when you get to the end of a line. This is old school mainframe stuff and it doesn’t do word wrap.

Screen Help – Screen 7 (Submittal Screen)

1. **Enter Your Name -** Enter your name here. It has also been suggested to enter you phone number as well so others working on the file can contact you for questions or clarification.

2. **Enter Report Destination –** Report Destination tells the system how to send the estimate back to you. Choice #1 is no longer valid and choice #2 only works if you have a printer set up to work with the system. Choose #3 to receive the report at your own computer. If you choose option 2, you must enter the printer ID for your office. Check the printers in your office for an ID sticker that should say ‘Mainframe ID T4FXXXXX’ with the X’s being the numbers or letters for your printer. If you enter the wrong ID, you could be sending your documents to a printer far, far away from you.

Screen Help – Screen 7 (Description Screen)

1. **Action –** This is a 1-character field. There are three choices for the action type: ‘E’ to establish a description, ‘D’ to delete a description, and ‘M’ to modify an established description.

2. **Record Type –** This is a 1-character field. The choices for record type are: ‘S’ for funding type segregation description, ‘A’ for alternate description, ‘N’ for non-standard item description (this is the most common use), ‘C’ for component description and ‘L’ for location description.

3. **Description Code –** This is an 11-character, alphanumeric field. The choices for description type are: Segregations: any 1 letter code, except for D, I, O & Z; Alternate Designs: any 2 letter codes; Non-Standard

Items: any 6 digit item code number followed by an 'A'; Components: up to any 11 character, alphanumeric code; Locations: up to any 2 character, alphanumeric code; for Alternate Segregation or Components Descriptions that already have a code on the Quantity/Price Screen, use that code.

4. **Description** – This is a three row, 40-character per row, alphanumeric field. Tab to the next line when you get to the end of a line. This is old school mainframe stuff and it doesn't do word wrap.

Screen Help – Screen 8 (Submittal Screen)

1. **Enter Your Name** – Enter your name here. . It has also been suggested to enter your phone number as well so others working on the file can contact you for questions and clarification.

2. **Enter Report Destination** - Report destination tells the system how to send the estimate back to you. Choice #1 is no longer valid and choice #2 works only if you have a printer set up to work with the system. Choose #3 to receive the report at your own computer. If you choose option 2, you must enter the printer ID for your office. Check the printers in your office for an ID sticker that should say 'Mainframe ID T4FXXXXX' with the X's being the numbers or letters for your printer. If you enter the wrong ID, you could be sending your documents to a printer far, far away from you.

3. **Submit Job (Y/N)** - Enter 'Y' to submit your BEES input data to the mainframe database (TEALE).

Screen Help – Screen 9 (Save Screen)

1. **Do You Want to Save Your Data (Y/N)?** – Enter 'Y' to save your data.

2. **File Name** – Use the 2-digit district and six-digit EA for the file name.

Screen Help – Screen 10 (Confirmation Screen)

The information shows that your data was sent to and accepted by the Data Center. If your screen shows "HOLDING" press the 'Page Down' key on your keyboard.

Screen Help – Screen 11 (Readerlist Screen)

The readerlist is like a mailbox with mail to us from the mainframe. We need to pick up the mail and take it home. Receive is how we take the mail from the mail box and take it home. 'F9' may not work on your computer. You may need to tab to the file you need and type in a command to receive the

file.

Move the Cursor next to the output file name. Under the column heading ‘Filetype’ look to the word ‘Output.’ This is the BEES output file. Use the cursor arrows on your keyboard or the Tab key to move the cursor.

To send your Filelist, use the Tab key to place your cursor in front of the first file. Type ‘receive / replace’ with spaces on each side of the (/). This will receive the file and replace any older copies in your Filelist with the new copy you just submitted. You can type right over the existing text. Type the command ‘receive / replace’ and hit Enter.

Press ‘F3’ to quite the Readerlist and return to the Ready Prompt screen.

Press ‘F11’ to view or “peek” at your output file. You can quickly view a file here but you cannot make any changes or editing.

Screen Help – Screen 12 (Filelist Screen)

The command menu on the bottom refers to the ‘F’ keys at the top of your keyboard. F8 will move one page forward in the reports and F7 will move one page backwards. F11 is used to view reports in the database and F3 will quit what you are currently using. Use F3 to exit when you are reviewing reports. Unfortunately, when you are viewing a report, and you need the ‘F’ key command menu the most, it’s gone from sight. The commands still work, just remember what they do.

To print a report:

Tab to the file line and type: print / your mainframe printer ID
(If you set your printer as a default you don’t need to type the printer name to print, just type the word print.)

Example:

print / trfa400 (be sure to use spaces around the /)
Your mainframe printer will have an ID number on a tag on the outside of a machine. It should start with a ‘T’. Use the ‘F’ key options on the bottom for other choices.

Screen Help – Screen 13 (Existing File Screen)

You can use this screen to access, edit and print existing files. Additional choices are also available. Tab to the file you need and type the corresponding letter from the list at the top of the screen.

Screen Help – Screen 14 (Ready Prompt Screen)

From here we can access the Readerlist, Filelist, F-list and use the run bees command.

The Readerlist is a holding place of stuff that gets sent to us from the mainframe system. It's like a mailbox and we need to go pick up the mail.

Go to the Readerlist by either hitting the 'F9' key or typing 'rdl' or 'readerlist.' If one doesn't work, try the others.

Help

Got a question? Check out the BEES User's Blog where you and other BEES users can share your knowledge. If you need further help, view the Troubleshooting Reports which contain information from the BEES manual.

Help - Troubleshooting

This is Chapter 15 of the BEES Manual. This information will help you solve problems with your reports:

- Purpose
- Checking the Data
- Report Error Messages
- No Highway Preliminary Estimate of Cost Report
- No Combined Preliminary Estimate of Cost Report
- Fatal Flaws

Purpose

BEES provides a significant amount of information to help you review and revise your estimate. Unfortunately, most of this information is abbreviated error messages and record summaries. The challenge to most users is figuring out what the error messages mean, and how to fix the problems in the estimate.

This chapter will discuss the common error messages in the BEES reports, the cause of the problems and provide solutions to fix them.

Checking the Data

Although BEES does provide some error messages, BEES cannot check whether or not your estimate is error-free or complete. Requesting every report and verifying the accuracy of your data, including items, item prices and item

quantities, can help ensure that your estimate will be ready for PS&E submittal to DES-OE.

Request the Reports

You should request all reports each time you run BEES. This will provide you with the most information to find any errors in your estimate. There are four types of reports:

- Price report
- Description report
- Preliminary estimate of cost report (blue sheet)
- Quantity report

If BEES does not create an estimate or there are errors in your estimate, the other reports will provide you with all the data you will need to identify the problem.

Verify the Accuracy of your Data

When you receive an error-free report, review your estimate for accuracy, BEES does not have a spell-check and cannot make a judgment to see if your estimate is reasonable.

Before submitting your estimate, check the following for accuracy:

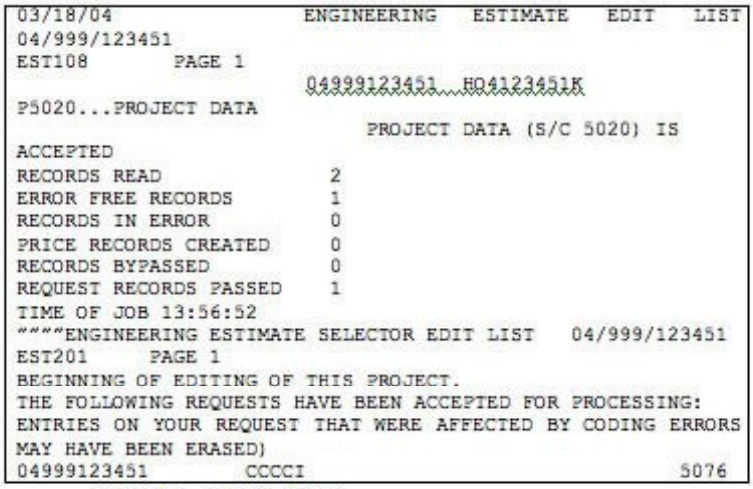
- EA phase
- PMCS information
- Item code numbers
- Non-standard item code numbers
- Non-standard item code descriptions
- Item quantities
- Item prices
- Mobilization (10%)
- Segregations
- Contingencies (5%)
- Supplemental work item code numbers
- State-furnished work item code numbers

Report Error Messages

The first 20 to 30 lines of your output can provide you with valuable insight about your estimate. This portion of the report shows information of the number of records processed by TEALE, trouble encountered by TEALE when processing the records and any erroneous results.

Number of Records

The first few lines of your output will look similar to Figure 15-1:



```
03/18/04                ENGINEERING   ESTIMATE   EDIT   LIST
04/999/123451
EST108       PAGE 1
                        04999123451  HO4123451K
P5020...PROJECT DATA
                             PROJECT DATA (S/C 5020) IS
ACCEPTED
RECORDS READ              2
ERROR FREE RECORDS        1
RECORDS IN ERROR          0
PRICE RECORDS CREATED     0
RECORDS BYPASSED          0
REQUEST RECORDS PASSED    1
TIME OF JOB 13:56:52
""""ENGINEERING ESTIMATE SELECTOR EDIT LIST   04/999/123451
EST201     PAGE 1
BEGINNING OF EDITING OF THIS PROJECT.
THE FOLLOWING REQUESTS HAVE BEEN ACCEPTED FOR PROCESSING:
ENTRIES ON YOUR REQUEST THAT WERE AFFECTED BY CODING ERRORS
MAY HAVE BEEN ERASED)
04999123451       CCCCI                                 5076
```

Figure 15-1. Record summary

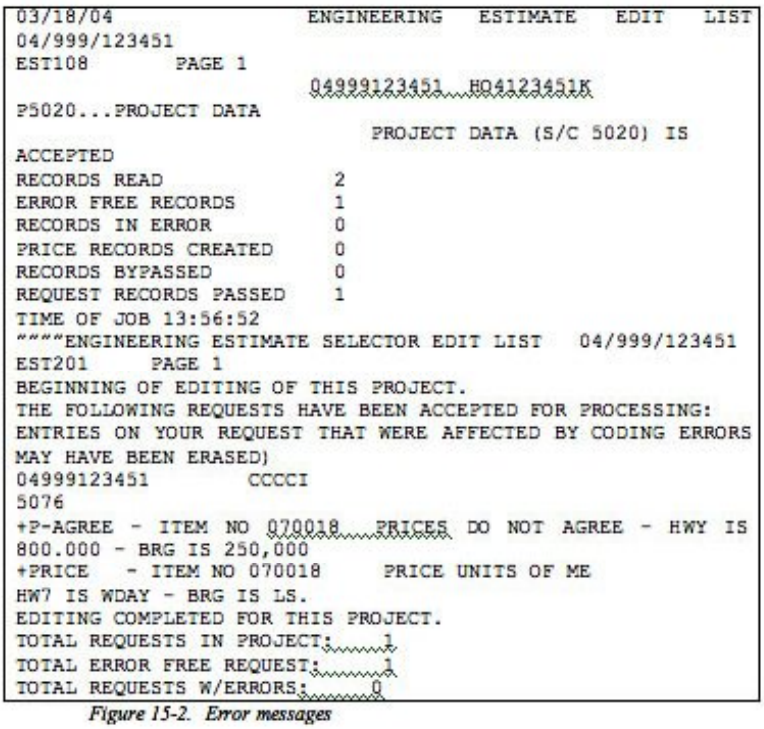
- **RECORDS READ** is the total number of lines in your BEESDATA input file.
- **ERROR FREE RECORDS** is the number of lines in your BEESDATA file that TEALE could execute.
- **RECORDS IN ERROR** is the number of lines in your BEESDATA file that have processing errors.
- **PRICE RECORDS CREATED** is the number of item price records created by this input file.
- **RECORDS BYPASSED** is the number of lines in your BEESDATA file that TEALE ignored.
- **REQUEST RECORDS PASSED** is the number of lines that request reports and have been processed.

These error messages can indicate how much of your input file was processed. If the number of records bypassed is almost equal to the number of records read, you can deduce that most of your changes were ignored. If the number of error free records is almost equal to the number of records read, then it is probable that all of your changes were made.

This summary of records can be helpful to see if your input file was successfully processed, but it does not clearly show where BEES found an error if most of the

records were ignored. The error messages will indicate where BEES encountered errors.
Error Messages

BEES prints a few error messages when certain types of errors are made. Most of these error messages are printed within the first 20 lines of the report. Some of these messages are preceded by ***WARNING***. Other messages are shown on the first page of the report. Figure 15-2 has an example of the warning messages.



```
03/18/04                ENGINEERING   ESTIMATE   EDIT   LIST
04/999/123451
EST108       PAGE 1
                        04999123451  HO4123451K
P5020...PROJECT DATA
                             PROJECT DATA (S/C 5020) IS
ACCEPTED
RECORDS READ              2
ERROR FREE RECORDS        1
RECORDS IN ERROR          0
PRICE RECORDS CREATED     0
RECORDS BYPASSED          0
REQUEST RECORDS PASSED    1
TIME OF JOB 13:56:52
"""ENGINEERING ESTIMATE SELECTOR EDIT LIST   04/999/123451
EST201     PAGE 1
BEGINNING OF EDITING OF THIS PROJECT.
THE FOLLOWING REQUESTS HAVE BEEN ACCEPTED FOR PROCESSING:
ENTRIES ON YOUR REQUEST THAT WERE AFFECTED BY CODING ERRORS
MAY HAVE BEEN ERASED)
04999123451        CCCCI
5076
+P-AGREE - ITEM NO 070018  PRICES DO NOT AGREE - HWY IS
800.000 - BRG IS 250,000
+PRICE   - ITEM NO 070018     PRICE UNITS OF ME
HW7 IS WDAY - BRG IS LS.
EDITING COMPLETED FOR THIS PROJECT.
TOTAL REQUESTS IN PROJECT:    1
TOTAL ERROR FREE REQUEST:     1
TOTAL REQUESTS W/ERRORS:      0
```

Figure 15-2. Error messages

Some of the error messages are listed below.

Item Price

Error Message	Problem	Solution
A zero price for item ##### was encountered. Zero prices must not appear on estimate.	The item price was entered as 0.	dify the item to change the item price. BEES will print an estimate if an item has a price equal to $0. Most likely the project total will be incorrect due to the zero price.
Miss-P – Item No ###### Price record(s) is missing.	The price for an item is missing.	Modify the item and enter a quantity. This error message appears if you

		delete a segregated quantity using Action code "D." Action code "D" deletes the item quantity and unit price, leaving the remaining segregated portions without a unit price. Use action code "A" to delete the quantity of a segregated item.
P-agree – Item No ###### Prices do not agree – Hwy is $$.000 – Brg is $$.000.	The bridge price is different from the highway price for the same item	Contact SOE – Estimating Branch and negotiate a price to use for both the bridge quantity and the highway quantity. BEES requires that you use the same price for the bridge quantity and the highway quantity of the same item. BEES will use the highway price if the prices do not match.

Cost Center

Error Message	Problem	Solution
The source code for this project is not a legal source code for the district requested, please correct and resubmit. All adds and/or changes for this project bypassed because of above error(s).	The cost center used to establish the estimate on the Project Information screen is an unauthorized cost center	Use the authorized cost center for the project.

Item Quantity

Error Message	Problem	Solution
Negative quantities must not appear on estimate.	The item quantity was entered as 0.	Modify the item to change the item quantity. BEES will print an estimate if an item has a quantity equal to 0. Most likely the project total will

		be incorrect due to the zero quantity.
Miss-Q – Item No ##### Quantity record(s) is missing.	The quantity for an item is missing.	Modify the item and enter a quantity.

Unit of Measure

Error Message	Problem	Solution
U of M – Item No ##### has unapproved units of measure – ??	The unit of measure is not an approved abbreviated unit of measure.	See Appendix I for the standard units of measure.
The unit of measure for the quantity and price entries must match. The unit of measure for price entry is ????.	The unit of measure for an item in a segregation does not match the unit of measure for the same item in another segregation.	Review the Quantity report to see which item has the incorrect unit of measure. Revise the segregated item as necessary. BEES requires that you use the same unit of measure for each segregated quantity.

Project Already Initiated

Error Message	Problem	Solution
This project has already been initiated. All add and/or changes for this project bypassed because of the above error(s).	The process code E was used on the Project Information screen.	Use K in the process field on the Project Information screen. Once a project has been initiated in BEES, you must use K for the process to make item modifications or deletions.

Lump Sum Items

Error Message	Problem	Solution
The total fractional quantities for hwy lump sum item ##### is 2.00.	the total segregated quantities for the lump sum item is equal to 2.	Modify the segregated quantities so that the total quantity equals 1. The total of segregated quantities for each lump

		sum item must equal 1.

No Estimate

Error Message	Problem	Solution
The combined blue sheet request was not accepted. The highway blue sheet request was not accepted.	The estimate has error(s) that prevent BEES from calculating the project cost.	Review the other error messages and modify the estimate as required. This error message is usually shown with other messages. The error in the estimate can be a missing price, missing quantity or lump sum item totals < or > 1. You will also receive this message if you use an "E" in the process field when modifying an established estimate.

No Output

Error Message	Problem	Solution
Condition processing resulted in the unhandled condition.	BEES received input that it cannot process.	Review the input file and modify the estimate as required. See "Fatal Flaws" in this chapter.

No Bridge Items

Error Message	Problem	Solution
There are no bridge price records for this project. There are no bridge description records for this project.	There are no bridge items established for this project.	If this is a combined project, contact SOE–Estimating Branch. If this is a highway project, use "H" in the report fields on the project Information screen.

Item Already Exists

Error Message	Problem	Solution
This entry currently exists. Your establish	You requested to establish an item that is	This message will appear in 2 situations: 1) If you

request cannot be completed.	already in the estimate.	are establishing segregated Quantities: This message will appear when you establish the same items in different segregations. Ignore this message. 2) If you are not using segregations: You Tried to establish an item that is already in the estimate. Use action code "M" to modify or "D" to delete an existing item.

No Highway Preliminary Estimate of Cost Report

Error Message	Problem	Solution
If you did not receive a highway Preliminary Estimate of Cost report, a number of things could have gone wrong. This is a short list of some of the more common problems and solutions.	No item quantity.	The item quantity is missing. Add the item quantity to the item.
	No item price.	The item price is missing. Add the item price to the item. This error message also appears if you delete a segregated quantity using Action code "D." Action code "D" deletes the item quantity and unit price, leaving the remaining segregated portions without a unit price. Use action code "A" to delete the quantity of a segregated item.
	No item unit of measure.	The item unit of measure is missing. Add the item unit of measure to the item.
	Lump sum item total is < or > 1.	The total quantity for a lump sum item must equal 1. Revise item quantity or segregated quantity so that the item quantity totals 1. The only exception to this rule is

		mobilization. If your project has highway and bridge items, the item quantity or mobilization will equal 2.

No Combined Preliminary Estimate of Cost Report

Error Message	Problem	Solution
If you did not receive a combined Preliminary Estimate of Cost report, a number of different things could have gone wrong. Here is a list of the more common problems and solutions.	Same keyword, different EA.	The highway estimate and the bridge estimate must use the same EA. Change the EA on either the bridge or highway estimate.
	Same EA, different keyword.	The highway estimate and the bridge estimate must use the same keyword. Change the keyword on either the bridge or highway estimate.
	Lump sum quantity < or > 1.	The total quantity for a lump sum item must equal 1. Revise item quantity or segregated quantities so that the item quantity totals 1. The only exception to this rule is mobilization. If your project has highway and bridge items, the item quantity for mobilization will equal 2.
	Only blue sheet requested (no output).	Requesting the other reports will help to identify why the combined blue sheet was not printed. Re–run BEES requesting all reports.
	Different unit for the same item.	The highway estimate and the bridge estimate must use the same unit of measure for each item.

		Check that each item uses the same unit for both the highway and bridge estimate. Revise items as necessary.
	No bridge items.	BEES need bridge items to produce a combined blue sheet. Contact SOE – Estimating Branch about the missing bridge items.

Fatal Flaws

There are a few situations where certain input will cause BEES to stop processing and produce error messages in programming language. This result is called an "unhandled condition." BEES does not have a programming routine and error message to clearly tell you what went wrong. An example of the output is shown in Figure 15–3.

```
CEE3DMP V2 R10.0:  Condition processing resulted in
the unhandled condition

Information for enclave EST101

 Information for thread 8000000000000000

  Traceback:
   DSA Addr   Program Unit  PU addr   PU Offset  Entry
   0002FA88   CEEHDSP       0C105188 +000030C4  CEEHDS
   0002F8F0   CEEHSGLT      0C193998 +0000005C  CEEHSG
   0002F3D8   IGZCMSG       26D316A8 +0000038C  IGZCMS
   0002E019   IGZCULE       0006A5D0 +000003C2  IGZCUL
   0002E2E0   EST104        0008ACA0 +00000FFC  EST104
   0002E0E8   IGZCFCC       00023130 +00000270  IGZCFC
   0002E018   EST101        000070D0 +00000938  EST101

  Condition Information for Active Routines
    Condition Information for CEEHSGLT (DSA address
0002F8F0)
       CIB Address:  00030100
       Current Condition:
          IGZ0020S A logic error occurred.  Neither
RILE STATUS nor a delclarative was specified for file
HLDPRICE in program EST104 at realitive location
X'OFFC'.  The status code was 47.
        Location:
          Program Unit:  DEEHSGLT Entry:  CEEHSGLT
Statement:  Offset:  +0000005C
       Storage dump near condition, beginning at
location:  0C1939E4
```

Figrure 15-3. Unhandled condition output

Error Message	Problem	Solution
There are four situations where an "unhandled	Unit price for a lump sum item is greater than or	BEES cannot accept lump sum unit prices over

condition" will occur. These are listed below. Once you have corrected the error, BEES will run normally.	Equal to $10 million.	$9,999,999.99. Reduce lump sum unit price to be below $10 million. Information Technology is currently working to remove this limitation.
	Total project cost is greater than or equal to $1 billion.	BEES cannot accept total project costs greater than or equal to $1 billion.
	Number of items exceeds 350.	EES cannot accept more than 350 items per project. This limit extends into the Bid Opening program and the Progress Pay program. Consolidate items using transfer pay or full compensation clauses in the special provisions; delete unnecessary items; evaluate the use of locations and special types for the same items of work. This limit applies to the total number of items for the project, including highway and bridge. If the project is a combined project, BEES will run separate highway and bridge reports if the number of items in each estimate does not exceed the limit.
	Item code does not include an "A" when using the N/S code.	BEES requires the "A" in the item code field when you use a N/S code for alternate bid projects. BEES also requires that only numbers are used in the N/S code field. Revise the item code to include an "A".
	Unapproved units of	BEES does not recognize

	measure.	the unit of measure for an item. Revise the unit of measure so that only the abbreviations shown in Appendix I are used.
	Item does not exist.	BEES can only modify or delete items when you use the correct item code, segregation code, or component. BEES does not recognize similar items in different segregations or components as the same item. Thus each portion of the item in a segregation or component must be modified or deleted separately. Check that the correct item code is being used. Item codes appear on the price report and the quantity report. If the item was entered with an incorrect code, use that code to delete the item. If the item is segregated, use the segregation code on the Quantity/Price screen when modifying the item. See the quantity report to determine if the item has been segregated. If the item is a bridge item, use the component code on the quantity input screen when modifying the item. See the quantity report to determine if the item has components.

BEES References

One of the most challenging things about learning new material is trying to remember everything you've learned when you're finished with the class and back at work. This section will provide you with tools you can continue to use when you just need a little help remembering something or you have a question that wasn't covered in the course.

Included on this site are a trouble shooting guide, the original BEES manual, information on the popular BEES GUI, and contact information when you have a question you just can't seem to find the answer for. In addition to these great tools we have added two items that are especially helpful; Screen Help and the BEES Blog. Be sure to check out these innovative features.

New BEES

When the BEES first came out over two decades ago it was so advanced it was the 'bees-knees', that's old-timer slang for super cool. Now we're into the twenty first century and we expect software programs to be so intuitive that they are sold without manuals. Most of us operating in this computer age find mainframe programs cumbersome, antiquated, and a little silly. Unfortunately the BEES feeds into systems that are just as old or older and have a difficult time interfacing with newer systems.

While BEES is not the main focus for replacement, it may be replaced in the future by a commercial product from the American Association of State Highway Transportation Officials (ASSHTO). According to Caltrans officials, the ASSHTO product called Proposal and Estimates System or PES may have enough functionality to completely replace the BEES by 2008 or 2009. In the mean time we are limited to the current system. Remember, this used to be considered modern, much like a 1974 Buick Electra back in 1974. Just consider it a classic. We could be still using punch cards.

BEES GUI

The BEES GUI (for Graphical User Interface) was created by a Caltrans district 2 engineer who wanted to provide a user friendly and intuitive option to the current BEES.

The BEES GUI was created by Apolinario Vivit. Please note that the BEES Gui is no longer supported by Appolinario, who was supporitng it as a favor to all the users and not as a work assignment. Users who want to get their own cpy would have to ask around to find a source.

Because Appolinario has been working in another department, he no longer supports the descriptions database, If an item is new and not included in the database the item description must be entered manually.

These screenshots give you a good idea of the usability of the program and how it might be easier to build an estimate.

While this training program will not train you on the BEES GUI we would be remiss if we didn't discuss it.

This is the input screen where you build your estimate. The system is very intuitive and helps you with the process as you work.

With the BEES GUI a submittal is sent into your Readerlist.

Then you must go into your Readerlist in BEES through TEAL to submit the estimate. If you fail to do this, your estimate will not be sent to the database.

You must also retrieve your file from the Readerlist to transfer it into your Filelist.

The BEES GUI is great for building an estimate before sending it in the first time. However, the BEES GUI has one major flaw that prevents it from being widely adopted: If you are updating an existing file all content on the existing file in the mainframe database is deleted and replaced by the new updated file. This is a problem because other people may be making corrections and updates to your estimate. If the district office engineer makes a change to your BEES file and you submit an updated file from BEES GUI all the changes made by the District OE are completely obliterated. If you use the BEES GUI to build your estimates you should update your existing files using the old, boring, mainframe BEES.

Contact

If you have questions or need help from a real live person please contact the BEES Coordinator for your district.